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From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

Rec'd PCT/IPEA 0 21 JAN 2005

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PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

11.11.2004

Applicant's or agent's file reference  
WO 21.1108

## IMPORTANT NOTIFICATION

International application No. PCT/EP 03/50261	International filing date (day/month/year) 25.06.2003	Priority date (day/month/year) 23.07.2002
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Applicant  
SERVICES PETROLIERS SCHLUMBERGER et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/I/B/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Marnell, J Tel. +49 89 2399-2557
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## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WO 21.1108	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/50261	International filing date ( <i>day/month/year</i> ) 25.06.2003	Priority date ( <i>day/month/year</i> ) 23.07.2002
International Patent Classification (IPC) or both national classification and IPC G01F1/15		
Applicant SERVICES PETROLIERS SCHLUMBERGER et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 1 sheets.
3. This report contains indications relating to the following items:
- I  Basis of the opinion
  - II  Priority
  - III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV  Lack of unity of invention
  - V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI  Certain documents cited
  - VII  Certain defects in the international application
  - VIII  Certain observations on the international application

Date of submission of the demand  17.02.2004	Date of completion of this report  11.11.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Papantoniou, E Telephone No. +49 89 2399-2468



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/50261

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-9 as originally filed

**Claims, Numbers**

1-11 received on 20.10.2004 with letter of 15.10.2004

**Drawings, Sheets**

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP 03/50261

5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes:	Claims	1 - 11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1 - 11
Industrial applicability (IA)	Yes:	Claims	1 - 11
	No:	Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: US-A-3 701 277

D2: US-A-4 114 440

2. Claim 1

D1, which is considered as the closest prior art, discloses an impeller (40, Fig. 2, or 38, Fig. 4; D1) for data acquisition in a flow (see column 5, lines 26 - 32, D1) made of plastic material (see column 3, lines 22 - 26, D1) and comprising blades (46, Fig. 4, D1) and a hub (48, comprising cylindrical extension 59 and protuberance 64, Fig. 4, see also column 3, last paragraph, D1).

The blades and hub of the flow meter of D1 are moulded together and have a spindle (36, Fig. 4, D1) trapped inside (see column 3, lines 2 - 4 and 22 - 26, and column 4, lines 1 - 10, D1). In addition, D1 discloses the use of a magnet (44, Fig. 4, D1) placed in the hub.

Thus the only difference between the subject matter of present claim 1 and D1 is that claim 1 defines that a magnet is trapped "inside" the hub, while according to D1 the magnet (44, Fig. 4, D1) is seated on a radial annular shoulder of the hub (48, or its extension 59, Fig. 4; see also column 3, lines 65 - 67, D1).

Object of the present application is therefore to protect the magnet from corrosion, in case the impeller is used in a corrosive environment. By encapsulating the magnet inside the hub, only the plastic impeller is in contact with the fluid, so that the magnet is protected.

D2 discloses a flow meter, wherein, in order to protect a magnet (72, Fig. 4 and 5, D2) from a corrosive fluid, the magnet is encapsulated inside the bladed hub (70, Fig. 4 and 5, D2).

Although the method of constructing the impeller of D2 is different than in the present application, e.g. an additional plug (78, Fig. 4 and 5, D1) and welding (see column 4, line 57 - column 5, line 5, D2) is used, nonetheless, the subject matter of present claim 1 defines the impeller itself and not a construction method. Thus

the skilled person using the impeller of D1 in a corrosive environment, would consider it as a normal constructional alternative to trap the magnet of D1 inside the hub, as taught by D2.

Thus the subject matter of claim 1 is not inventive (Article 33(3) PCT).

3. Dependant claims 2 - 11 do not contain any features which, in combination with the features of claim 1, meet the requirements of the PCT in respect of inventive step. The features of these claims seem to define obvious constructional alternatives in view of D1 or D2.

CLAIMS (replacement sheet)

1. Impeller for data acquisition in a flow, made of a plastic material and comprising blades (1) and a hub (2), characterized in that said blades and hub are moulded by trapping a spindle (3) and at least one magnet (4) inside the hub (2).
2. Impeller according to claim 1, characterized in that the impeller further includes an insert (5) housing the magnet (4).
3. Impeller according to claim 2, characterized that the insert (5) and the spindle (3) are fixed to each other.
4. Impeller according to claim 3, characterized in that the insert (5) is crimped around the spindle (3).
5. Impeller according to claim 4, characterized in that the cross section (7) of the spindle (3) is reduced at the crimping (6).
6. Impeller according to any one of claims 1 to 5, characterized in that it comprises at least one pair of magnets (4) on each side of the spindle (3) that attract each other.
7. Impeller according to any one of claims 1 to 6, characterized in that the plastic material is a polyetherketone type thermoplastic resin.
8. Impeller according to any one of claims 1 to 7, characterized in that the magnet (4) is based on samarium cobalt.
9. Impeller according to any one of claims 1 to 8, characterized in that the spindle (3) is based on tungsten carbide.
10. Impeller according to any one of claims 2 to 9, characterized in that the insert (5) is based on aluminium.
11. Data acquisition instrument in a flow, characterized in that it comprises at least one impeller (11) according to any one of claims 1 to 10.